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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/714,498      | 11/14/2003  | Lawrence K. Lam      | 070602-0122         | 1019             |

7590 04/04/2005

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EXAMINER

MULL, FRED H

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

3662

DATE MAILED: 04/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/714,498

Applicant(s)

LAM ET AL.

Examiner

Fred H. Mull

Art Unit

3662

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 January 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-12 and 21-25 is/are allowed.
- 6) ☒ Claim(s) 13, 18-20, 27 and 35 is/are rejected.
- 7) ☒ Claim(s) 14-17, 26, 27-34, and 36 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to the rejection(s) of claims 1-36 have been fully considered and are persuasive. The rejection(s) of these claims have been withdrawn. However, upon further consideration, a new ground(s) of rejection is made over claims 13, 18-20, 27, and 35.

### ***Claim Objections***

2. Claim(s) 19 is/are objected to under 37 CFR 1.75. In line 1, "first signal process system" should be changed to --first signal processing system-- in order to be consistent with parent claim 13. Correction is required.

3. Claim(s) 34 is/are objected to under 37 CFR 1.75. On p. 14, line 4, after "the third signal" --being the-- should be added. Correction is required.

4. Claim(s) 36 is/are objected to under 37 CFR 1.75. On p. 16, line 2, after "the third signal" --being the-- should be added. Correction is required.

5. Claim(s) 26, 32, and 34 is/are objected to under 37 CFR 1.75(i). Where a claim sets forth a plurality of elements or steps, each element or step of the claim should be separated by a line indentation. There may be plural indentations to further segregate subcombinations or related steps. See MPEP §608.01(m). In this case, there are indentations that do not coincide with the beginning of a new element or step recitation,

and thus which obscure the differentiation of the various elements or steps. Appropriate correction is required.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 13, 18-20, 27, and 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kuwahara in view of Clenet, any one of {Letoquart '569, Heteyi, and Haendel}, and any one of {Hunsinger, Long, and Pecar}.

In regard to claims 13, 27, and 35, Kuwahara discloses:

a first signal processing system configured to receive or generate a first combined signal and to generate or receive at least a first divided signal and a second divided signal (120, Fig. 4);

a first phase shifter (top 130);

a second phase shifter (bottom 130);

a first attenuator (top 140);

a second attenuator (bottom 140);

a second signal processing system configured to receive or generate the seventh divided signal and the eighth divided signal and generate or receive a second combined signal (170).

Kuwahara fails to disclose a first time delay system between said first signal processing system and said first phase shifter; and

a second time delay system between said first signal processing system and said second phase shifter.

Kuwahara further discloses his invention is used in a microwave landing system (MLS) (col. 2, lines 41-42).

However, both civilian and military aircraft have been known to be targeted by terrorist or military foes. For example, Letoquart '569 (col. 1, lines 8-12) and Heteyi (col. 1, lines 6-7), disclose that MLS is at risk for jamming. Haendel discloses that signals confined to a specific frequency are easily jammed (col. 1, lines 45-47).

Hunsinger (col. 8, lines 52-59), Long (col. 4, lines 55-59), and Pecar (col. 1, lines 29-33; col. 4, lines 9-17) teach using a wideband signal to defeat the jamming of a narrowband signal.

Clenet teaches using a time delay with a phase shifter in an array antenna in order to allow transmission wideband transmission (abstract).

It would have been obvious to include time delays in the invention of Kuwahara to allow wideband operation of the MLS, as taught by Clenet, in order to overcome jamming signal that may be initiated against landing aircraft.

In regard to claim 18, cables, optical fibers, and transmission lines are well known time delay systems.

In regard to claim 19, Kuwahara further discloses the first signal processing system is a signal divider (120).

In regard to claim 20, Kuwahara further discloses the second signal processing system is a signal combiner (170).

***Allowable Subject Matter***

7. Claim(s) 1-12 and 21-25 is/are allowed.
8. Claim(s) 14-17 and 28-31 is/are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
9. Claim(s) 26, 32-34, and 36 would be allowable if rewritten to overcome the objection(s) set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

The following is an examiner's statement of reasons for allowance:

10. With regard to claims 1-12, the closest prior art, Lam and Kyriakos, do(es) not teach or make obvious the following limitation(s):

a switching system configured to receive the at least a sixth signal and a seventh signal and output an eighth signal and a ninth signal, the eighth signal being the same as one of the at least a sixth signal and a seventh signal, the ninth signal being the same as one of the at least a sixth signal and a seventh signal.

11. With regard to claims 21-23, the closest prior art, Lam, Kyriakos, and Hancock do(es) not teach or make obvious the following limitation(s):

wherein the applying the first phase shift to the first signal is associated with the first phase-shifted signal, the first phase-shifted signal substantially free from any phase difference with respect to the reference signal at a predetermined frequency;

wherein the applying the first time delay to the first signal is associated with the first phase-shifted and time-delayed signal, the first phase-shifted and time-delayed signal substantially free from any phase difference with respect to the reference signal within a frequency range, the frequency range including the predetermined frequency.

12. With regard to claims 24-26, the closest prior art, Lam and Kyriakos, do(es) not teach or make obvious the following limitation(s):

wherein the first phase-shifted and time-delayed signal is associated with a second phase difference at the predetermined frequency with respect to a first combined phase-shifted and time- delayed signal, the first combined phase-shifted and time-delayed signal equal to a size of the first phase-shifted and time-delayed signal and the plurality of signals other than the first signal;

wherein the second phase difference is smaller than the first phase difference at the predetermined frequency.

13. With regard to claims 32-33, the closest prior art, Lam and Kyriakos, do(es) not teach or make obvious the following limitation(s):

determining an relative time delay between the third signal and the first signal with respect to the reference time delay based on at least information associated with the first signal and the third signal.

14. With regard to claims 34 and 36, the closest prior art, Lam and Kyriakos, do(es) not teach or make obvious the following limitation(s):

a switching system configured to receive the at least a first output and a second output and output a third signal and a fourth signal, the third signal being the same as one of the at least a first output and a second output, the fourth signal same as one of the at least a first output and a second output.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Fred H. Mull whose telephone number is 703-305-1250. The examiner can normally be reached on M-F 9:00 - 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas H. Tarcza can be reached on 703-360-4171. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.


Effective April 5, 2005, the following new telephone numbers will be in effect:  
Fred H. Mull: 571-272-6975, Thomas H. Tarcza: 571-272-6979.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Fred H. Mull  
Examiner  
Art Unit 3662

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